

# **Conceptual Plan For Achieving Long-term Everglades Water Quality Goals**

*Technical Oversight Committee*

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# Overview

## ■ Background

- Everglades Forever Act requirements
- Considerable progress to date

## ■ Conceptual Plan

- >3 years in the making
- Early strategies in *Consolidated Reports*
- Future actions

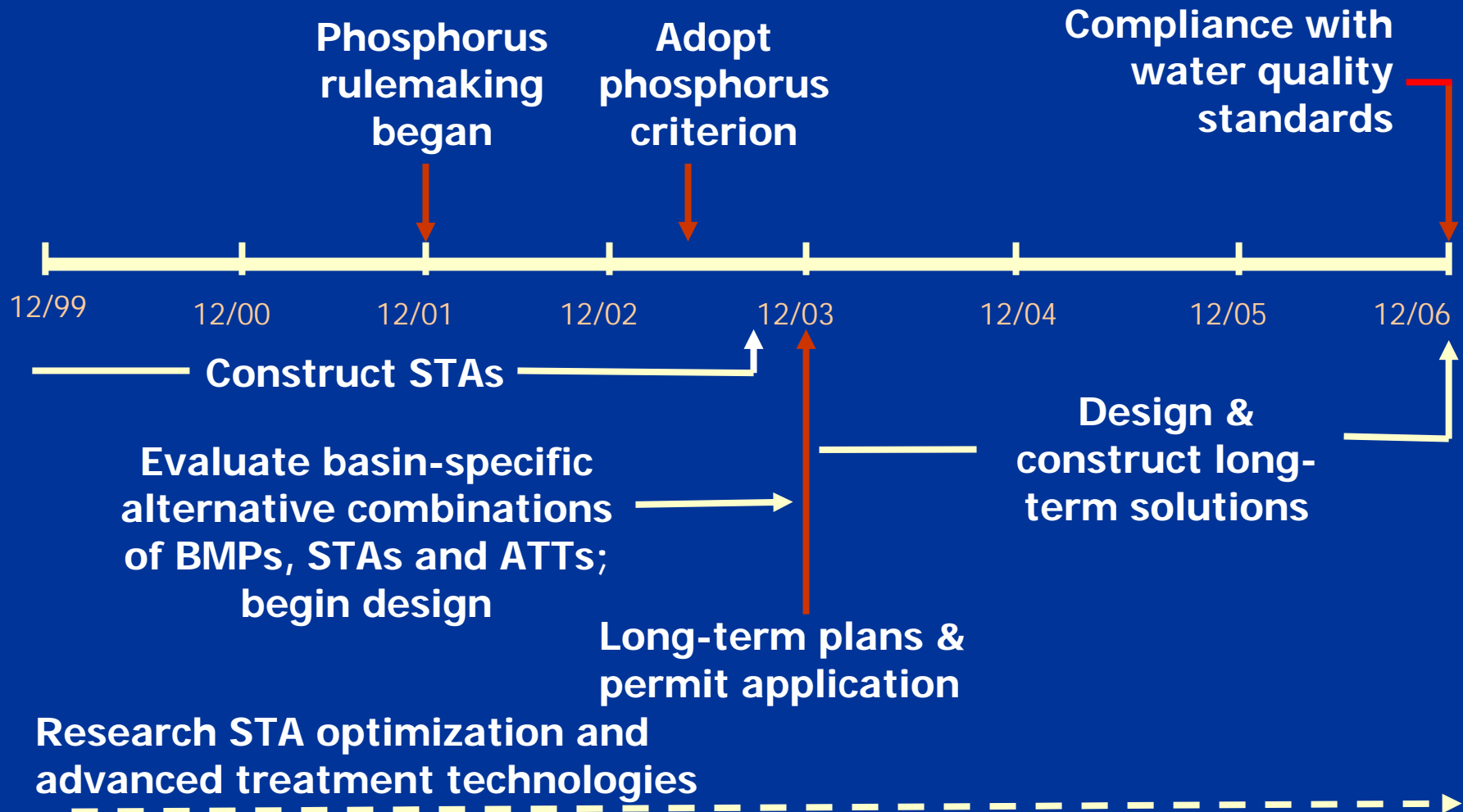
# Common Abbrev.

- ATT - Advanced treatment technology
- BMP - Best Management Practices
- C-# or L-# refers to Canal or levee
- CERP - Comprehensive Everglades Restoration Plan
- EAA - Everglades Agricultural Area
- ECP - Everglades Construction Project
- EFA - 1994 Everglades Forever Act
- ESP - Everglades Stormwater Program
- PSTA - Periphyton-based STA
- PDT - Project Development Team
- S-# or G-# refers to Structure
- SAV - Submerged Aquatic Vegetation
- STA - Stormwater Treatment Area
- TP - Total Phosphorus

# ACHIEVING EVERGLADES WATER QUALITY

## Mandated time frames

Implement Best  
Management  
Practices



## ECP Basins:



STA-1E

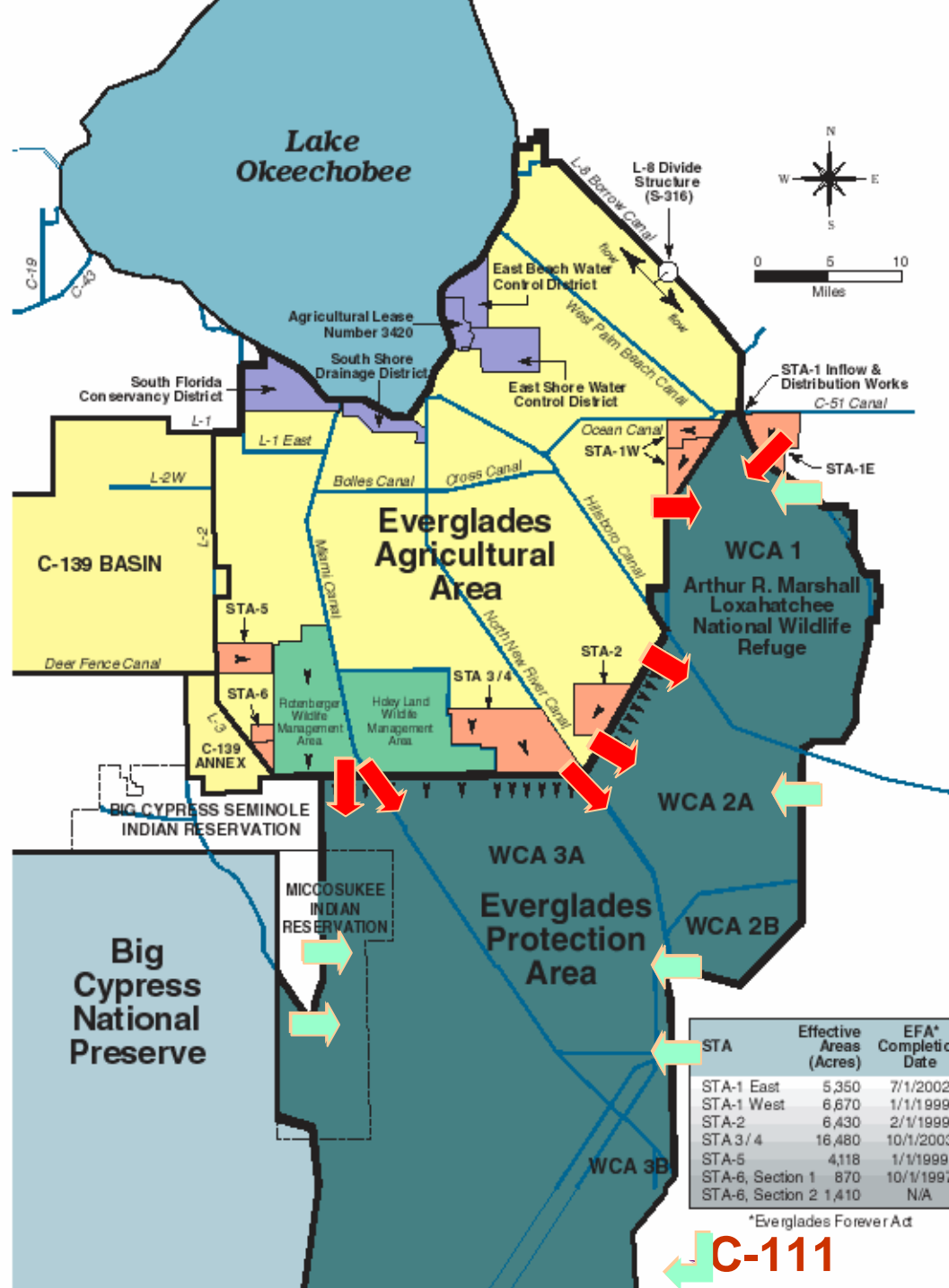
STA-1W

STA-2

STA-3/4

STA-5

STA-6



## ESP Basins:



ACME Basin  
“B”

North Springs  
Improvement  
District

North New  
River Canal

C-11 West

L-28

Feeder Canal

C-111

C-111

# Progress to Date

- **Implemented EAA BMPs**
  - Performing better than expected
  - Averaging >50% load reduction
- **Stormwater Treatment Areas**
  - Four are operational
  - STA-1E and STA-3/4 under construction
  - Average performance better than expected
- **Additional measures will be needed to meet water quality goals**

# Basin-Specific Feasibility Studies

- Evaluated combinations of BMPs, regional treatment works, and integration with CERP
  - Technical, economic and other factors
- Scientific uncertainties remain, however:
  - Models suggest possibility to achieve goals for 80-90% of discharges by Dec. 2006
    - STAs Enhancements
  - Potential for substantial economic benefits by integrating with CERP projects
    - Over \$750 million in capital costs, if projects developed independent of CERP

# Conceptual Plan

- A Conceptual Plan to achieve compliance with water quality standards - based on years of peer-reviewed investigations and engineering studies
- Developed by technical experts and consultants
  - Same core group that developed the 1994 Conceptual Design
- Will serve as basis for District's long-term permit applications due 12/31/2003

# **Plan Principles**

- 1. Implement scientifically defensible improvements by December 31, 2006**
- 2. Continue technical investigations to evaluate further improvements**
- 3. Implement additional steps as soon as the need and feasibility are confirmed**
- 4. Integrate with other regional efforts, CERP in particular**
- 5. Accelerate the recovery of impacted areas within the Everglades**

# Plan Components

- **Everglades Construction Project**
  - Source controls (BMPs)
  - STA optimization
  - Implementation of additional measures after 2006
- **ESP Basins**
  - Source controls
  - Integration with CERP
  - Implementation of additional measures after 2006
- **Continue science-based investigations**
- **Accelerate recovery of impacted areas**

# Everglades Construction Project Basins

- Enhanced source controls in EAA, C-139 and C-51W basins
- STA Enhancements by Dec. 2006
  - Additional compartmentalization
  - Vegetation management
  - Operational refinements
- STA operation, maintenance & monitoring
  - Structure, levee, canal, vegetation
  - Flow and water quality monitoring

# Everglades Stormwater Program Basins

## ■ Source Controls by Dec. 2006

- Ordinances, landowner agreements & capital projects
- Hot spot identification and remediation
- Expanded water quality outreach

## ■ Integrate with CERP

### ■ Most promising alternatives:

- Acme Basin B treatment in STA-1E
  - Diversion of C-11 West (S-9), NSID and NNRC
  - Accelerate modification of L-28 Interceptor Canal
  - Accelerate STAs on Tribal lands
- *CERP process will make final decisions - no change in cost-share relationship*

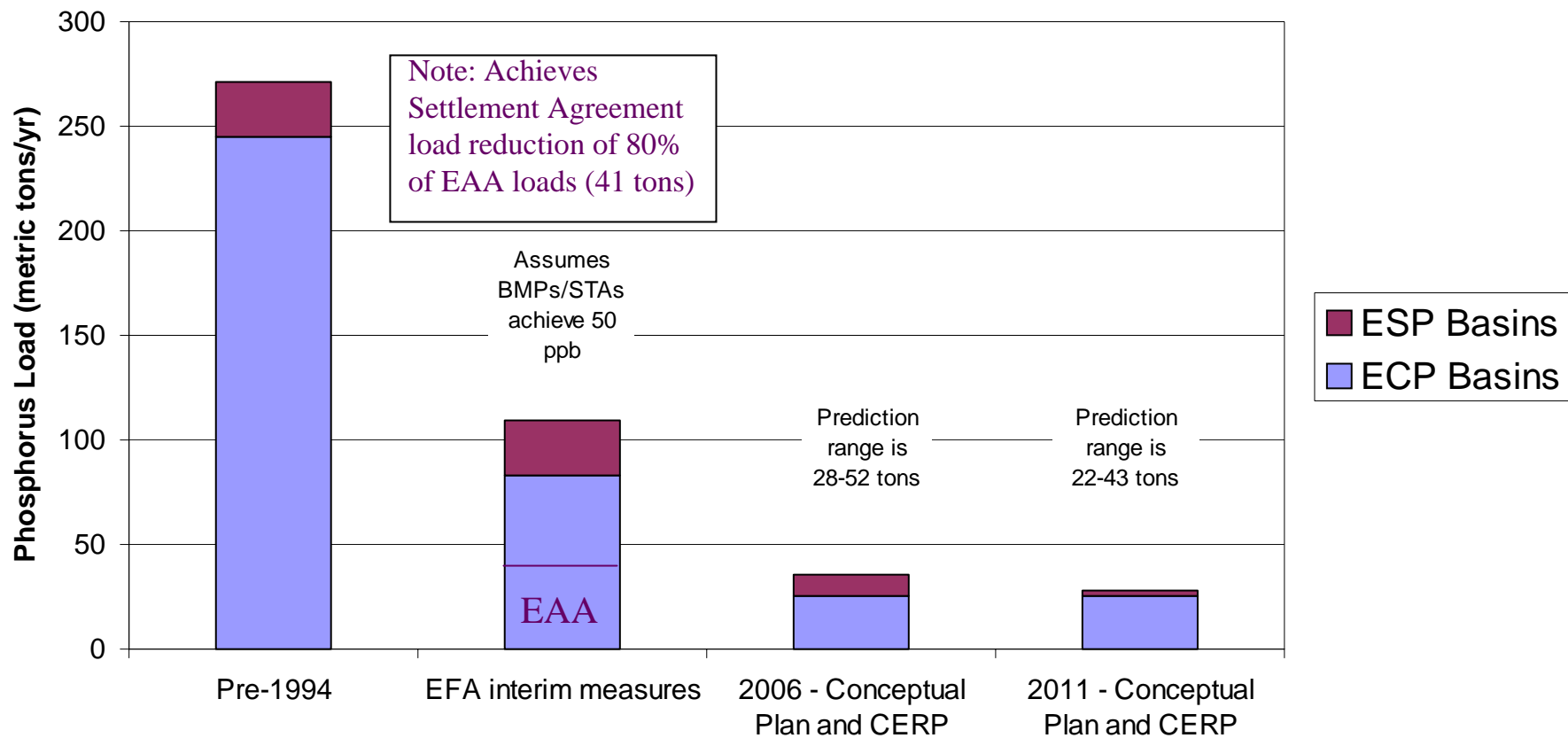
# **Continue Scientific Investigations**

- Referred to as Process Development and Engineering (PDE)
- Improve performance of urban and agricultural BMPs
- Enhance performance of STAs
- Improve forecasting tools and data sets

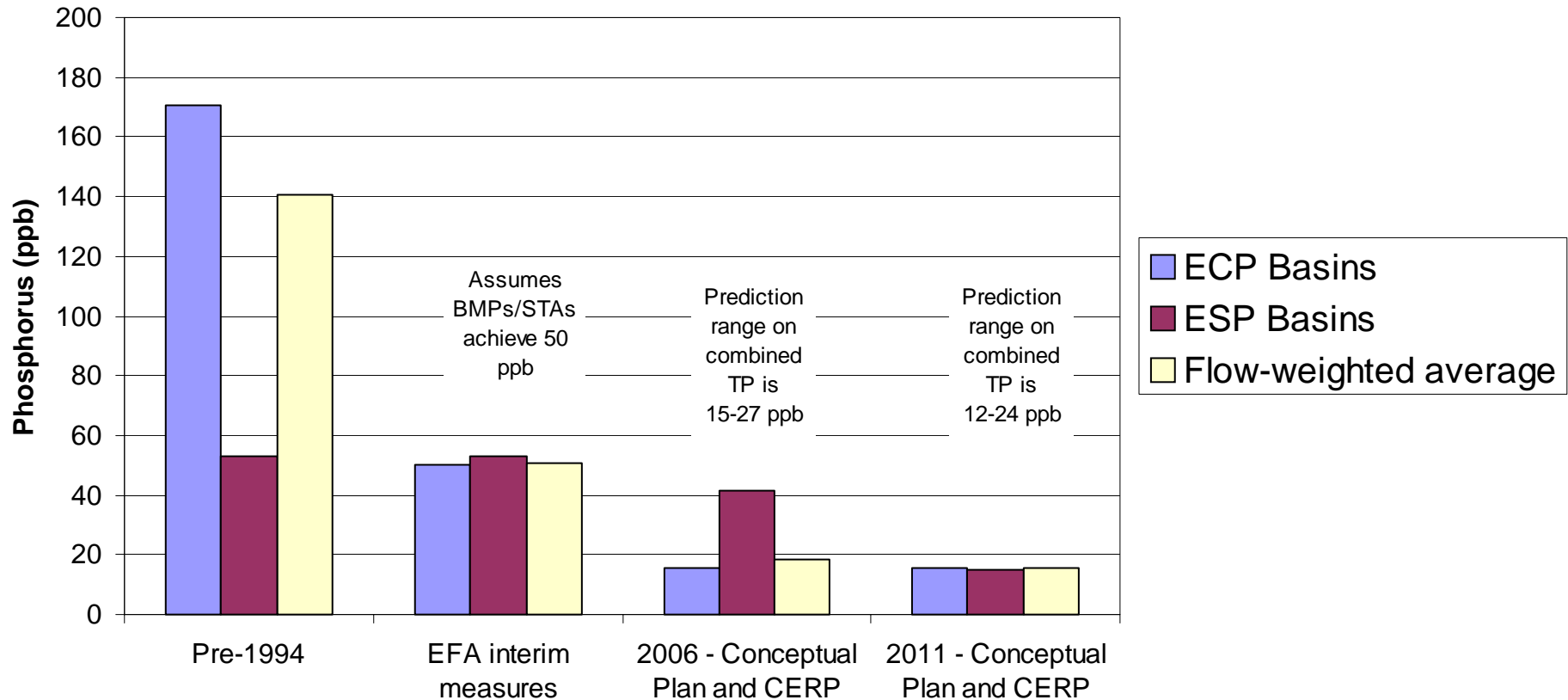
# **Adaptive Implementation**

- **\$36 million allocated beginning in 2007**
- **Objective is to further reduce TP in discharges**
- **Includes both ECP and ESP basins**
- **Potential enhancements include:**
  - **Integration with CERP projects**
  - **Conversion of additional lands to SAV, PSTA or other vegetative communities**
  - **Additional structural and operational modifications within existing STAs**
  - **Implement enhanced BMPs**

## Estimated Annual Phosphorus Loads to the Everglades



## Estimated Annual Phosphorus Concentrations



# Recovery of Impacted Areas

## ■ Before Dec. 2006

- Investigate measures to accelerate recovery
- Improve forecasting models

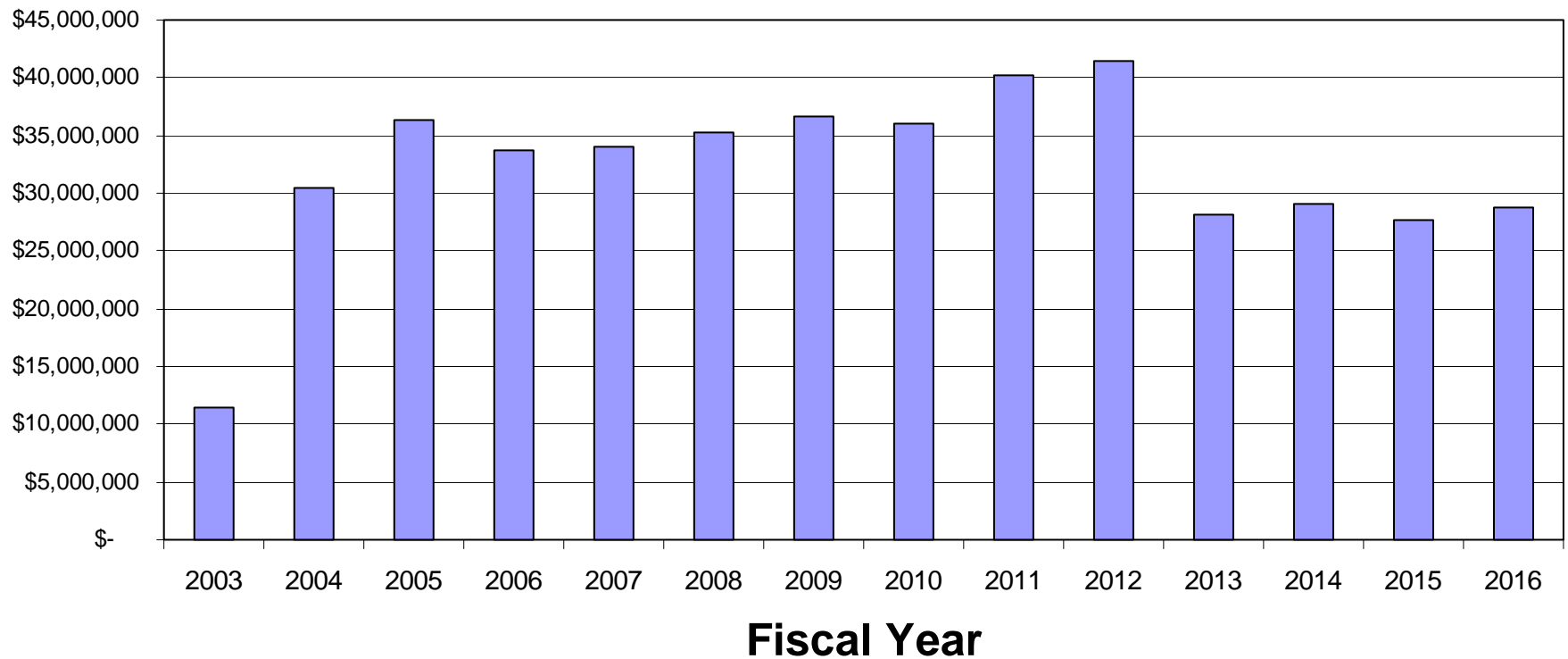
## ■ After Dec. 2006

- Hydropattern restoration works
  - Distribution, volume and timing
  - Integrate with CERP hydropattern restoration
- Active management within the water conservation areas

# Preliminary Costs Through 2016

- **Everglades Construction Project**
  - STA optimization: \$52.4 million
  - Existing O&M: \$189.5 million
  - Performance support: \$91.5 million
- **Everglades Stormwater Program: \$1.4 million**
  - Other local, state and federal funds
- **Science-based investigations: \$32 million**
- **Adaptive implementation: \$36 million**
- **Recovery of impacted areas: \$47.7 million**

## Conceptual Plan Annual Cost Estimates \$450 million through FY 2016



**May be additional costs for further integrating with CERP projects**

# Plan Summary

- Reduce phosphorus levels to Everglades
- Accelerate recovery of impacted areas
- Integrate with CERP projects
- Provide basis for SFWMD long-term permit applications

# Future Steps

- Plan has been under review for >60 days
- Public - solicited review from 100s of individuals
- Federal agencies
  - Corps of Engineers - STA-1E & CERP process
  - Dept. of Interior, U.S.E.P.A.
- District: \$ estimates, schedules, constraints
- Legislative and ERC actions
- Anticipate presenting revised plan to Governing Board in October/November as part of long-term permit application